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# **NATIVE VASCULAR PLANTS**

## **Endangered, Threatened, Or Otherwise In Jeopardy In South Carolina**

**By  
Douglas A. Rayner, Chairman  
And Other Members Of The  
South Carolina Advisory  
Committee On  
Endangered, Threatened  
And Rare Plants**

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**NATIVE VASCULAR PLANTS  
ENDANGERED, THREATENED,  
OR OTHERWISE IN JEOPARDY  
IN SOUTH CAROLINA**

**by**

**Douglas A. Rayner, Chairman**

**and other members of the**

**South Carolina Advisory Committee**

**on**

**Endangered, Threatened, and Rare Plants**

**March, 1979**



Current membership of the S. C. Committee on Endangered, Threatened, and Rare Plants—

Subcommittee on Criteria:

Ross C. Clark, Chairman (1977); Erskine College (taxonomy and ecology)  
Steven M. Jones, Clemson University (forest ecology)  
Richard D. Porcher, The Citadel (taxonomy)  
Douglas A. Rayner, S. C. Wildlife Department (taxonomy and ecology)

Subcommittee on Listings:

C. Leland Rodgers, Chairman (1977 listings); Furman University (taxonomy and ecology)  
Wade T. Batson, University of South Carolina, Columbia (taxonomy and ecology)  
Ross C. Clark, Erskine College (taxonomy and ecology)  
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Joseph N. Pinson, Jr., University of South Carolina, Coastal Carolina College (taxonomy)  
Robert W. Powell, Jr., Converse College (taxonomy)  
Douglas A. Rayner, Chairman (1979 listings) S. C. Wildlife Department (taxonomy and ecology)

## INTRODUCTION

South Carolina's first list of rare vascular plants was produced as part of the 1976 S. C. Endangered Species Symposium by the S. C. Advisory Committee on Endangered, Threatened and Rare Plants, 1977. The Symposium was a joint effort of The Citadel's Department of Biology and the S. C. Wildlife and Marine Resources Department's Nongame and Endangered Species Program. The introduction to this as yet unpublished rare plant list states that the list will be reviewed by the Advisory Committee at least every two years. This manuscript is the first revision of that initial list.

The S. C. Wildlife and Marine Resources Department's Heritage Trust Program assumed a leadership role in the organization and production of this revision. The Heritage Trust Program is committed to the conservation of rare and endangered species of plants and animals. The Program has been working since its inception in 1974 to collect biological and ecological data on rare plants and animals throughout the State. A thorough, up-to-date list of S. C.'s rare, threatened and endangered vascular plants is absolutely essential if the Program is to carry out one of its primary objectives, the preservation of South Carolina's natural diversity.

The many reasons for the formulation and maintenance of such a list are aptly summarized by James W. Hardin in the introduction to *North Carolina Endangered and Threatened Vascular Plants* (Hardin et. al., 1977), "We hope that this account of the endangered and threatened vascular plants will aid legislators and conservationists in the formulation of new regulations or laws for increased protection of the native (South Carolina) flora and the habitats in which they exist. It should also alert the general public to the precarious status of numerous plant species and unique environments in the state. Such a report should be useful to individuals and organizations interested in designating 'natural areas,' and maintaining wild flower sanctuaries or botanical gardens. The information contained here should be valuable in the preparation of 'environmental impact statements,' and publicity or educational programs regarding the endangered plants of the state. It is also hoped that this report will give the impetus to an ongoing and vigorous research program leading to a greater understanding of the taxonomy, ecology, and reproductive biology of these organisms.

"We sincerely trust that the report will not encourage people to dig up the few remaining specimens from their natural environment and transplant them into private gardens, where they rarely survive. Such selfish, private exploitation must not occur. Commercial interests should turn to nursery propagation rather than digging plants from their native habitats."



## GENERAL INFORMATION

The information presented here was drafted by the South Carolina Advisory Committee on Endangered, Threatened and Rare Plants. Members of this committee were selected from various institutions located in different physiographic areas of the state. The committee actively sought input from all interested individuals and groups.

A public meeting was held on January 6, 1979, to discuss criteria to be used in developing the list as well as potential species to be included in the list. Appendix I lists the non-committee participants at this meeting.\* Information concerning the distribution and/or taxonomy of selected "problem" species was solicited from knowledgeable out-of-state botanists. Appendix II lists these contributors, their institutional associations, and their areas of expertise. Other sources of information utilized by the committee included state and national lists of rare, threatened or endangered species (see list of references), scientific literature, and in particular, herbarium records.

The final decisions as to the criteria to be used in listing species and in making the final listings themselves were made by the Criteria and Listings Sub-committees, respectively, on February 16 and 17, 1979. The lists in this paper, especially the "Of Statewide Concern in S. C." list and the "Of Concern; Status Unresolved" list, are thought to be quite conservative. Undoubtedly, quite a few additional species deserve listing as threatened or endangered. The knowledgeable reader will note in particular the relatively small number of species listed from the taxonomically difficult groups Poaceae (grasses) and Cyperaceae (sedges). This, hopefully, is a deficiency that will be remedied in the near future. The committee remains active in its deliberations and continues to solicit input from all interested parties.

In order to verify the existence in South Carolina of plants which may be considered as threatened or endangered, it is expected that an herbarium specimen of such a plant will be retained at a suitable place accessible to the public, i. e., an institutional herbarium or public museum. For the purpose of listing a plant as threatened or endangered, visual sightings are not allowable. A clearly diagnostic photograph is recommended when population levels do not permit collection. The identity of the taxon to which the specimen or photograph belongs should be verified independently by at least two active professional botanists. The herbarium specimen or photograph should include information on locality and date of collection, habitat and any other information that might be useful in relocating the population or in assessing the vigor of the population.

The South Carolina Wildlife and Marine Resources Department's Heritage Trust Program maintains records of the occurrence and distribution of the State's threatened and endangered plants. For the purpose of their record-keeping, it is highly desirable that locations be given as accurately as possible (including map coordinates when possible).

## SIGNIFICANCE CATEGORIES

Plants believed to be endangered or threatened in South Carolina are listed in this paper in four major categories: Of National Concern (1), Of Regional Concern (2), Of Statewide Concern (3), and Of Concern; Status Unresolved (4). The first three categories are based on priority or significance; the last category contains species whose status needs further study to determine the category to which they realistically belong.

Significance, we realize, is not an inherent characteristic of a species. It is a value judgment which is made for administrative reasons; it enables one to set protection and search priorities. Significance can change through time, usually as a result of an increase in knowledge, so that plants that are thought to be of high significance today may be judged to be of lower significance in the future and vice versa. The Committee, however, has been especially careful not to list species as "Of National Concern" unless they are highly unlikely to change in status in the future.

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\*If you were not contacted about this meeting and would like to be contacted about future meetings, please so indicate in writing to: Dr. Douglas Rayner, S. C. Heritage Trust, Box 167, Columbia, S. C. 29202.



1. Of National Concern.  
Species listed in this category are endangered or threatened throughout their entire range in the continental United States.
2. Of Regional Concern.  
Each species listed here is threatened or endangered throughout a significant portion of its range that includes South Carolina and other states of our general region. In parts of its range outside of our region, the species may be of no particular concern, but in our part of the country, its rarity and the status of its populations over a wide area are a cause of concern because of definite, widespread rarity and/or threats of a more immediate nature. South Carolina populations that are far disjunct from the main populations of the species also are listed here.
3. Of Statewide Concern in South Carolina.  
Species listed here are those which are not of particular concern on a national or regional level. Listings here include species which are considered to be endangered or threatened only in S. C., species whose peripheral populations extend into S. C., species which warrant scrutiny because of the tangible possibility of future threats to their well-being, and species likely to be exploited within the State.
4. Of Concern; Status Unresolved.  
Species listed in this category are those for which insufficient information is available to base a careful determination of status. However, if further information were available, there is reason to believe that these species could possibly meet criteria for listing in one of the three above listed categories.

This is the first state list of rare plants that includes the category "Of Regional Concern." We feel that this category is very helpful, especially considering our very strict definition of the category "Of National Concern." Without this "intermediate" category a species such as yellowwood (*Cladrastis lutea*), which is rare except in Tennessee, would be given the same significance, for example, as long sedge (*Carex folliculata*), a widespread species which is rare only in S. C.

In order to categorize a species as "Of National Concern" or "Regional Concern," it is necessary to determine the rarity of that species throughout its entire range (for species "Of National Concern") or at least neighboring states (for species "Of Regional Concern"). To do this we relied on:

1. information provided in Kartesz and Kartesz (1977), which is essentially a compendium of state and federal rare plant lists;
2. post-1977 lists for most of the southeastern states — Florida, Georgia, North Carolina, Tennessee, Virginia and West Virginia;
3. personal communication with knowledgeable professional botanists from throughout the southeast (Appendix II.)

We realize that as rare plant lists change in neighboring states, our lists "Of National Concern" or "Of Regional Concern" may have to change as well. Therefore, we continue to solicit input from out-of-state botanists concerning the status in their state of plants listed here as "Of National Concern" or "Of Regional Concern."

## PLANT RARITY AND ENDANGERMENT

The concept of rarity is a difficult one to define because the bounds or limits of rarity are totally subjective. Plant rarity involves both the overall distribution of a species and the relative density or frequency of individuals of the species within that distribution. A species which is limited to a very small geographic area and is represented by few individual plants, such as *Sarracenia jonesii* Wherry, Mountain sweet pitcher plant, obviously is rare. A species



which is quite widespread but represented by few individual plants within that distribution, like *Lindera melissaefolium* (Walter) Blume, Jove's fruit, is obviously rare. The rarity of species whose distribution and abundance are intermediate between these two extremes is not easily determined. Moreover, the experience of the investigator can significantly affect rarity determinations. In general, the more experience the investigator has with plant distribution, the better he is able to assess true rarity.

In addition, many species, for a variety of reasons, are easily overlooked:

1. *Lepuropetalon spathulatum* (Muhl.) Ell., Southern lepuropetalon, is extremely small.
2. *Botrychium lunarioides* Michaux, Winter grapefern, is small and produces spores during the winter months, when botanizing generally is at a minimum.
3. *Monotropsis odorata* Schweinitz in Ell. Pigmy pipes, is small and often is hidden beneath leaf litter in pine forests.
4. *Nestronia umbellula* Raf., Nestronia, is not small but is rather non-descript and is easily overlooked, even when in flower.
5. *Carya myristicaeformis* Michaux, Nutmeg hickory, is not easily distinguished from several common hickories.
6. *Triphora trianthophora* (Swartz) Rydberg, Three-birds orchid, may exist underground for several years between years when it flowers.

By the very fact that they are rare, the plants included in these lists are to be considered as endangered or threatened. Nonetheless, the following definitions of endangered and threatened should serve to clarify these concepts:

**Endangered** — A taxon whose population level is naturally low or which has become reduced in numbers throughout all or a significant portion of its range, or whose natural habitat has been altered and/or reduced to the extent that reproductive populations are small and vulnerable to extirpation. Without protection and management throughout its range, a taxon in this category could well be extirpated from its natural habitats within the immediate future.

**Threatened** — A taxon which is not in immediate danger of extirpation, but one whose populations have been depleted or are decreasing at a significant rate and/or whose natural habitat has been altered or destroyed throughout much of its original range. Without protection and management, these plants are likely to become endangered within the foreseeable future throughout all or a significant portion of their range.

The following definitions are all related to the concepts of rarity and endangerment and should be of help in understanding the lists that follow:

**Disjunct** — Removed by great distance from its main series of populations.

**Endemic** — Confined to a restricted physiographic or geographic entity, such as a single drainage system or similar situation; or, limited in range to South Carolina or to the immediate region.

**Exploited** — Undergoing significant decline in its natural habitat(s) due to removal for commercial or other purposes.

**Extinct** — Occurrence in South Carolina has been documented in the past, but no recent reports of occurrence exist. These taxa may still be extant in nearby states.

**Peripherally Rare** — Reaches the edge of its range in South Carolina.



## ORGANIZATION OF THE LISTS

### Federally Proposed Endangered and Threatened Vascular Plants

The first list that follows is a list of Federally proposed endangered and threatened plants species for South Carolina whose actual status, we believe, is different from their proposed status (U. S. Dept of the Interior, 1975 and 1976.) Plants in this list are grouped into proposed endangered species and proposed threatened species and are listed alphabetically by their scientific names within each group. The recommended change in status (or significance) and the reason for that change are given for each species.

### South Carolina's Rare, Threatened, or Endangered Vascular Plants

Each vascular plant species, including subspecies or varieties, which is of concern in South Carolina because of rare, threatened, or endangered status, has been listed in one of the following categories: Of National Concern, Of Regional Concern, Of Statewide Concern in South Carolina, or Of Concern; Status Unresolved. Only plants native to the United States which have documented occurrences in South Carolina have been listed. Species that are extinct in South Carolina have been listed in the category that they would be in if they were still in South Carolina.

Species are listed alphabetically by their scientific names within each category. For each plant the following information may be given: scientific name, common name, family name, status, distribution, habitat, causes of rarity, physiographic province (s) of occurrence in S. C., and potential threats. Most nomenclature follows Radford et. al. (1968). Common names are generally from Radford et al. (1968), Hardin et al. (1977), or Kartesz and Kartesz (1977). Unless otherwise indicated, the habitat listed is the habitat of the species in S. C.

The status of a species generally is given as either endangered or threatened. A species that is endangered is endangered throughout the area of concern, i.e., Of National Concern — throughout the nation. If a species is threatened in most of the nation or region, but endangered in S. C., its status is listed as, Threatened; endangered in S. C. If the status of a species is unknown for the region but known in S. C., the status is listed as \_\_\_\_\_, Endangered (or Threatened) in S. C. or simply as, Endangered (or Threatened) in S. C. No status is given if the status of a species is unknown in S. C.

## ACKNOWLEDGEMENTS

We would like to thank all individuals who contributed data used in this paper. We would also like to thank Debbie Faithful for typing the drafts and final copy of this paper. We give particular thanks to the S. C. Wildlife and Marine Resources Department for funding much of the preparation of this paper.

Douglas A. Rayner  
Chairman



## FEDERALLY PROPOSED ENDANGERED OR THREATENED PLANT SPECIES FOR SOUTH CAROLINA

Of the 52 rare plant species proposed (including 7 species not proposed for S. C. but proposed for other states and now known to occur in S. C.) as Nationally Endangered or Threatened for S. C. in the *Federal Register* (July 1, 1975 and June 16, 1976), we have excluded or lowered the status of the following:

### ENDANGERED

*Balduina atropurpurea* Harper. Quite common in Georgia; listed here as Of Statewide Concern in S. C. (Endangered).

*Elliottia racemosa* Muhl. Listed here as Of National Concern (Extinct in S. C.).

*Hymenocallis coronaria* (LeConte) Kunth. Taxonomic questions are still unresolved; listed here as Of Concern; Status Unresolved.

### THREATENED

*Agrimonia incisa* T. & G. Not rare or endangered in most of its range; listed here as Of Statewide Concern in S. C. (Threatened).

*Calamovilfa brevipilis* (Torrey) Scribner. Not rare or endangered in the heart of its range (N. J.); listed here as Of Regional Concern (Endangered).

*Carex chapmanii* Steudel. Not rare in Fla.; listed here as Of Regional Concern (Threatened).

*Cymophyllus fraseri* (And.) MacKenzie. Known only from a single old collection; listed here as Of National Concern (Extinct in S. C.).

*Dicerandra odoratissima* Harper. Not rare or endangered in Ga.; listed here as Of Regional Concern (Threatened).

*Fothergilla gardenii* Murray. Common in the coastal plain of N. C. and S. C.; not listed here.

*Isoetes melanospora* Engelm. No substantiated report from S. C.; the more widespread granite outcrop quillwort (*I. piedmontana* (Pfeiffer) Reed) is listed here as Of Statewide Concern in S. C. (Threatened).

*Juncus gymnocarpus* Coville. Not rare or endangered in N. C.; listed here as Of Concern; Status Unresolved.

*Lachnocaulon beyrichianum* Sporleder. Apparently not rare or threatened in much of its range; listed here as Of Concern; Status Unresolved.

*Litsea aestivalis* (L.) Fernald. Not rare in S. C.; listed here as Of Regional Concern (Threatened).

*Panicum lithophilum* Swallen. Not rare or endangered in Ga.; listed here as Of Regional Concern (Threatened).

*Pieris phyllireifolia* (Hooker) DC. Not rare or threatened in Fla. and parts of Ga.; listed here as Of Regional Concern (Threatened).

*Pinckneya pubens* Michaux. Not rare or threatened in Fla. or Ga.; listed here as Of Statewide Concern in S. C. (Threatened).

*Platanthera integra* (Nutt.) Gray ex Beck (*Habenaria integra* (Nutt.) Sprengel). Not uncommon in much of its range; listed here as Of Statewide Concern in S. C. (Threatened).

*Platanthera peramoena* Gray (*Habenaria peramoena* Gray). Not uncommon in parts of its range; listed here as Of Regional Concern (Endangered).

*Portulaca smallii* P. Wilson. No substantiated report from S. C.; not listed here.



- Ptilimnium fluviatile* (Rose) Mathias. The only report of this species from S. C. apparently was based on a misidentification of *P. nodosum* (Rose) Mathias; not listed here.
- Ptilimnium nodosum* (Rose) Mathias. Apparently not rare in Ga.; listed here as Of Statewide Concern in S. C. (Endangered).
- Quercus georgiana* M. A. Curtis. Not uncommon in Ga.; possibly extinct in S. C.; listed here as Of Concern; Status Unresolved.
- Rhaphidophyllum hystrix* (Fraser) H. Wendl. Not uncommon in parts of its range; listed here as Of Regional Concern (Threatened; endangered in S. C.).
- Sarracenia rubra* Walter. Not uncommon throughout most of its range; listed here as Of Statewide Concern in S. C. (Threatened).
- Schisandra glabra* (Brick.) Rehder. Apparently not rare in parts of its range; listed here as Of Regional Concern (Threatened, endangered in S. C.).
- Senecio millefolium* T. & G. Somewhat rare but not threatened in S. C.; listed here as Of Regional Concern (Threatened).
- Sporobolus teretifolius* Harper. Apparently not rare in Ga.; listed here as Of Regional Concern (Threatened).
- Viguiera porteri* A. Gray. Not uncommon in Ga.; listed here as Of Regional Concern (Threatened; endangered in S. C.).
- Waldsteinia lobata* (Baldwin) T. & G. No substantiated reports from S. C. (or N. C.); not listed here.

### PLANT SPECIES OF NATIONAL CONCERN (1)

- Amphianthus pusillus* Torrey. Diminutive amphianthus. Scrophulariaceae. Endangered. Endemic to the piedmont of S. C. and Ga.; restricted to vernal pools on granite flatrocks; habitat is endangered due to heavy recreational use and potential stone quarrying.
- Arenaria godfreyi* Shinners. Godfrey's sandwort. Caryophyllaceae. Threatened; endangered in S. C. Endemic to the coastal plain of N. C., S. C., Ala., and Fla.; restricted to wooded seepage slopes of marl soils; its very restricted habitat probably accounts for its rarity.
- Asplenium heteroresiliens* W. H. Wagner. Carolina spleenwort fern. Polypodiaceae. Endangered. Endemic to the coastal plain of N. C., S. C., Ga., and Fla.; restricted to shaded, consolidated marl outcrops; known from very small populations in very few localities.
- Asplenium monanthes* L. Single sorus spleenwort. Polypodiaceae. Threatened; endangered in S. C. Found in N. C., S. C., Fla., and Ariz. (also s. to Chile); unusual disjunction between se. and sw. U. S.; found on shaded granite boulders or bluffs near rivers and waterfalls in cool ravines in the mountains; threatened by river impoundments; the only S. C. population may now be under Lake Jocassee.
- Aster avitus* Alexander. Alexander's rock aster. Asteraceae. Endangered. Endemic to the piedmont of S. C. and Ga.; restricted to a single granite flatrock in each state; the Ga. population has been destroyed; the S. C. population is endangered due to heavy recreational use and the potential for stone quarrying.
- Coreopsis latifolia* Michaux. Broad-leaved coreopsis. Asteraceae. Threatened. Endemic to the mountains of N. C., S. C., and Ga.; found in rich moist woods; populations are small, widely dispersed and occur with low fidelity in characteristic habitats.



- Cymophyllus fraseri* (And.) MacKenzie. Fraser's sedge. Cyperaceae. Extinct in S. C. Reported from the mountains of Pa., Tenn., Va., W. Va., N. C., and S. C.; found in rich woods and stream banks.
- Dionaea muscipula* Ellis. Venus' fly trap. Dionaeaceae. Threatened; endangered in S. C. Endemic to the coastal plain of S. C. and N. C.; found primarily in open, sandy bog margins; exploited commercially and by private collectors; its habitat is being eliminated by development; no longer found in 2 of the 3 S. C. counties where originally found.
- Draba aprica* Beadle. Open-ground whitlowgrass. Brassicaceae. Endangered. Found in S. C., Ga., Mo., Ark., and Okla.; in S. C. and Ga. it is restricted to shallow soils on or around granite flatrocks; populations are few and widely scattered; habitat is endangered due to heavy recreational use and potential stone quarrying.
- Echinacea laevigata* (Boynton and Beadel) Blake. Smooth coneflower. Asteraceae. Threatened. Piedmont of Ala., Ga., S. C., N. C., Va., and Pa.; found on basic or circumneutral soils of meadows and woodlands; populations are small and widely dispersed; habitat in some localities has been destroyed by development.
- Elliotia racemosa* Muhl. Georgia plume. Ericaceae. Extinct in S. C. Endemic to Ga. and S. C.; found on sand ridges, oak ridges, hammocks, and sandstone outcrops in a variety of sandy soil conditions (from moist to xeric); the only S. C. population (Aiken County) has been destroyed.
- Fothergilla major* (Sims) Lodd. Mountain witchhazel. Hamamelidaceae. Threatened. Found in the mountains of Ala., Ga., S. C., N. C., and Tenn.; found in dry woods; populations occur with low fidelity in characteristic habitats.
- Habenaria blephariglottis* var. *integrilabia* Correll. White fringeless orchid. Endangered. Mountains of Ky., Tenn., N. C., and S. C., coastal plain of Ala. and Miss.; restricted to cool seepage areas in S. C.; sphagnum bogs elsewhere; populations are small and widely dispersed; exploited by private collectors.
- Helianthus schweinitzii* T. & G. Schweinitz' sunflower. Asteraceae. Threatened; endangered in S. C. Endemic to the southern piedmont and coastal plain of S. C. and N. C.; found in upland woods, thickets and dry, often sandy or rocky woods; the single S. C. population may not be extant.
- Helonias bullata* L. Swamp-pink. Liliaceae. Threatened; endangered in S. C. Found in Ga., S. C., N. C., & Pa. in the mountains and in Va., D. C., N. Y., and N. J. in the coastal plain. Found in swamps and bogs; the species has reproductive problems; threatened by drainage or flooding of its habitat and by exploitation by private collectors.
- Hexastylis naniflora* Blomquist. Dwarf-flowered heartleaf. Aristolochiaceae. Endangered. Endemic to the piedmont of S. C. and N. C.; found in rich north-facing woods; known from only 4 counties; the only population in one S. C. county apparently has been partially destroyed by a flood control project.
- Hymenophyllum tunbridgense* (L.) Smith. Tunbridge fern. Hymenophyllaceae. Endangered. The only North American population of this species is in the mountains of S. C.; found on damp granite boulders in a deep gorge; collection by professional botanists and fern collectors poses a major threat to this species.
- Ilex amelanchier* M. A. Curtis. Sarvis holly. Aquifoliaceae. Threatened. Found in the coastal plain of se. Va., N. C., S. C., Ga., n. Fla., and La.; found in mucky swamps, river banks and floodplains; populations are clonal, small and widely dispersed; it may have reproductive problems; threatened by stream channelization, flood control projects, and drainage of swamps.



- Kalmia cuneata* Michaux. White wicky. Ericaceae. Threatened; endangered in S. C. Endemic to the coastal plain of S. C. and N. C.; restricted to open borders of bays and bogs in sandy, peaty soil; populations are small; it is highly susceptible to natural succession and human disturbance.
- Lilaeopsis carolinensis* (Coul.) Rose. Carolina lilaeopsis. Apiaceae. Endangered. Se. Va., N. C., S. C., Fla., and La.; found in sunny mud flats of freshwater ponds and marshes; populations occur with low fidelity in characteristic habitats; threatened by drainage or filling of ponds and marshes for development.
- Lindera melissaefolium* (Walter) Blume. Jove's fruit or Southern spicebush. Lauraceae. Endangered. N. C., S. C., Ala., Miss., Mo., and Fla. (no recently substantiated collection); found along the margins of limesink ponds; populations are small and widely dispersed.
- Lysimachia asperulaefolia* Poiret. Rough-leaved loosestrife. Primulaceae. Threatened; endangered in S. C. Endemic to the coastal plain of S. C. and N. C.; found in upland, evergreen shrub bogs; S. C.'s only populations have not been recently verified.
- Lysimachia fraseri* Duby. Fraser's loosestrife. Primulaceae. Threatened. Tenn., N. C., S. C., Ga., and Ala.; found in alluvial meadows; populations are few, small and widely dispersed; threatened by destruction of habitat.
- Monotropsis odorata* Schweinitz in Ell. Pigmy-pipes. Ericaceae. Threatened; endangered in S. C. Reported from Md., Ky., Tenn., Va., W. Va., N. C., S. C., and Ga.; found in mixed deciduous, often dry woods; rare throughout its range; this species is small, inconspicuous and may be easily overlooked; known from four populations in S. C., none of which has been recently verified.
- Myriophyllum laxum* Schuttlew. ex Chapman. Loose watermilfoil. Haloragaceae. Threatened. Endemic to the coastal plain of N. C., S. C., Ga., and Fla.; found in ponds and sinks; although abundant when present, this species is known from relatively few, widely dispersed locations; threatened by loss of habitat to development.
- Nestronia umbellula* Raf. Nestronia. Santalaceae. Threatened. Endemic to the piedmont and inner coastal plain of Va., N. C., S. C., Ga., and Ala.; found as a parasitic associate of the roots of oaks and pines; although known from quite a number of localities, this species has reproductive problems and is becoming increasingly rare.
- Parnassia caroliniana* Michaux. Carolina grass-of-parnassus. Saxifragaceae. Endangered. Endemic to the coastal plain of Ala., S. C., N. C., (Fla. and Miss. - no recent collections); found in savannahs; populations are small, few and widely scattered; it has been extirpated from almost 1/2 its original range.
- Pyxidanthra barbulata* var. *brevifolia* (Wells) Ahles. Wells' pixie moss. Diapensiaceae. Endangered. Endemic to the coastal plain of N. C. and S. C.; found in xeric fall line sandhills; the taxonomy of this plant is still open to debate; reproduction is poor and plants are difficult to transplant or propagate.
- Quercus oglethorpensis* Duncan. Oglethorpe oak. Fagaceae. Threatened. Endemic to the piedmont of S. C. and Ga.; typically found on relatively flat, ancient floodplain terraces; it has been extirpated from perhaps 1/2 the known locations.
- Rhus michauxii* Sargent. Michaux' sumac. Anacardiaceae. Threatened; endangered in S. C. Endemic to Ga., S. C. and N. C.; found in sandy or rocky woods perhaps on basic or circumneutral soils; occurs with low fidelity in characteristic habitats; the only known S. C. population may have been destroyed by commercial development.
- Ribes echinellum* (Coville) Rehder. Spiny gooseberry. Rosaceae. Endangered. Known only from one population in Fla. and one in S. C.; in S. C. it is found in rocky, north-facing woods over basic soil.



*Rudbeckia heliopsisidis* T & G. Sun-facing coneflower. Asteraceae. Threatened. Reported from Va. to Ala.; found in woodlands, meadows and low ground; the species is extinct in Va. and hasn't been collected in Ga. since 1838; locally abundant but the known populations are few and widely dispersed.

*Sagittaria fasciculata* E. O. Beal. Bunched arrowhead. Alismataceae. Endangered. Endemic to S. C. and N. C.; known from only 2 populations in C. C. and one in S. C.; restricted to shallow muddy areas with continual slow seepage; most of the known habitat in N. C. has been destroyed; the habitat of this species is extremely rare.

*Sarracenia jonesii* Wherry. Mountain sweet pitcher plant. Sarraceniaceae. Endangered. Endemic to the mountains of N. C. and S. C.; found along streams; populations are few and so small that the species could easily be extirpated from its natural habitat by wildflower collectors.

*Sedum pusillum* Michaux. Puck's orpine. Crassulaceae. Threatened. Endemic to the piedmont of Ga., S. C. and N. C.; restricted to a few granite outcrops; typically found growing among mosses in partial shade under red cedar trees; its habitat is endangered due to heavy recreational use and potential stone quarrying.

*Shortia galacifolia* T. & G. Oconee bells. Diapensiaceae. Threatened. Endemic to the Blue Ridge escarpment of Ga., S. C., N. C.; rich woods and stream banks; over 1/2 of its habitat in S. C. has been destroyed by the formation of Lake Jocassee and Lake Keowee; it is also exploited by private and commercial wildflower collectors.

*Solidago verna* M. A. Curtis ex T. & G. Spring-flowering goldenrod. Asteraceae. Threatened. Endemic to the coastal plain of S. C. and N. C.; found in pine barrens, savannahs and shrub bogs; an extremely local species threatened only because of its extremely restricted range.

*Trillium persistens* Duncan. Persistent trillium. Liliaceae. Endangered. Endemic to the Tallulah-Tugaloo River systems of S. C. and Ga.; typically found in relatively open woods under *Rhododendron maximum* or *R. minus*; threatened by stream impoundments, commercial development, and wildflower collectors.

*Trillium pusillum* Michaux var. *pusillum*. Dwarf or Carolina trillium. Liliaceae. Endangered. Endemic to N. C. and S. C.; found in moist woods, margins of shrub bogs and savannahs; populations are small and widely dispersed.

*Vaccinium sempervirens* Rayner and Henderson. Rayner's huckleberry. Ericaceae. Endangered. Endemic to the sandhills of S. C.; found within and along the margins of Atlantic white cedar bogs; extremely restricted in distribution; threatened by stream impoundment and residential development. (Note: the official description of this species has been submitted to *Rhodora* for publication, but has not yet been published.)

*Zephranthes simpsonii* Chapman. Rain lily. Amaryllidaceae. Threatened. Endemic to the coastal plain of S. C., Ga. and pen. Fla.; found in low, sandy pinelands; exploited by private wildflower collectors.

## OF REGIONAL CONCERN (2)

*Aconitum uncinatum* L. Monkshood. Ranunculaceae. Threatened. Rare in the southern periphery of its range (S. C., Ga. and Ala.); found in rich woods in the mountains; exploited for medicinal purposes.

*Aesculus parviflora* Walter. Bottle-brush buckeye. Hippocastanaceae. Threatened. Rare or in need of protection in the northern 3/4 of its range (S. C., Ga. and Ala.); exploited for ornamental purposes.

*Amorpha schwerini* C. K. Schneid. Schwerin's indigobush. Fabaceae. Threatened; endangered in S. C. Rare in the northern 1/2 of its range (N. C. and S. C.); found on



rocky river bluffs and open rocky slopes; the only S. C. population is in the area to be flooded by the proposed Richard Russell Dam.

*Arethusa bulbosa* L. Bog-rose. Orchidaceae. Threatened; endangered in S. C. Widespread eastern N. A. species; rare in 13 states and 3 provinces of Canada; found in sphagnum bogs and wet meadows; because the rootstock is only loosely attached in the moss, the plant is easily disturbed or removed.

*Asclepias pedicellata* Walter. Savannah milkweed Asclepiadaceae. Threatened. Rare or overlooked in the northern 3/4 of its range (N. C., S. C. and Ga.); found in savannahs or pinelands that are covered with water for part of the year.

*Asplenium bradleyi* D. C. Eaton. Bradley's spleenwort. Polypodiaceae. Endangered in S. C. Rare throughout most of its range, including Ala., Ga., S. C., N. C., and Tenn.; found in crevices in bare acid rocks; populations are small, widely dispersed, and occur with low fidelity in characteristic habitats.

*Asplenium pinnatifidum* Nuttall. Pinnatifid spleenwort. Polypodiaceae. Threatened in S. C. Rare in about 1/2 its range, including Ga., S. C. and N. C.; found in dry shaded crevices of sub-acid or circumneutral rocks; populations occur with low fidelity in characteristic habitats.

*Calamovilfa brevipilis* (Torrey) Scribner. Riverbank sandreed. Poaceae. Endangered. Far disjunct from the main population in N. J.; found in savannahs and bogs in N. C. and S. C.; its habitat is dependent on fire or management for its continued existence.

*Camassia scilloides* Raf. Wild hyacinth. Liliaceae. Threatened; endangered in S. C. A fairly widespread eastern species; rare in 7 states including Ga. and S. C.; found in a wet, wooded prairie remnant; a one-of-a-kind habitat for S. C.

*Carex austro-caroliniana* Bailey. South Carolina sedge. Cyperaceae. A southern Appalachian endemic; rare in Ala., Ga. and S. C.; found in rich woods; the type of this species is from Table Rock Mountain, S. C.

*Carex chapmanii* Steudel. Chapman's sedge. Cyperaceae. Threatened. Found in Fla., S. C., N. C., and Va.; rare in N. C. and S. C., status undetermined in Virginia, infrequent in Florida; found in dry sandy woods and roadsides; possibly more common than present collections indicate.

*Carya myristicaeformis* Michaux. Nutmeg hickory. Juglandaceae. Threatened; endangered in S. C. Rare in N. C., S. C., Ark., Ok. and Tx.; not rare in La. or Miss.; found in swamp forests, bottomlands and riverbanks; there are no recent collections of this species from S. C.

*Castilleja coccinea* (L.) Sprengel. Scarlet indian paint-brush. Scrophulariaceae. A wide-range eastern species; rare in the southern periphery of its range in Ala., Ga., S. C., and Va.; exploited by wildflower collectors.

*Chelone cuthbertii* Small. Cuthbert's turtlehead. Scrophulariaceae. Endangered in S. C. Endemic to the mountains of N. C. and the coastal plain of S. C. and Va.; the unusual disjunction exhibited by this species suggests that it is an old species; only one known locality in S. C.

*Cladrastis lutea* (Mich. f.) K. Koch. Yellowwood. Fabaceae. Threatened. Rare everywhere (Ala., Ga., S. C., N. C., Ky., Ind., Ill., Ark., Mo., and Okla.) except Tenn.; found in rich woods and on slopes or cliffs near streams, often on basic soils; exploited for ornamental purposes.

*Cynanchum scoparium* Nuttall. Leafless swallow-wort. Asclepiadaceae. Extinct in S. C. Endemic to the coastal plain of Fla., Ga. and S. C.; found on coastal hammocks; in S. C. known only from early collections around Bluffton.



- Dicerandra odoratissima* Harper. Rose dicerandra. Lamiaceae. Threatened. Endemic to the coastal plain of S. C., Ga. and Fla.; rare in S. C. and Fla.; found in sandy open soil in thin scrub oak woods; locally abundant but known populations are few.
- Diphylleia cymosa* Michaux. Umbrella leaf. Berberidaceae. \_\_\_\_\_; endangered in S. C. Endemic to the mountains of Ala., Ga., S. C., N. C., Va., and Tenn.; rare except in N. C.; found in moist seepages and along streams at relatively high elevations; populations of this species generally are very small and widely dispersed.
- Echinacea purpurea* (L.) Moench. Eastern purple coneflower. Asteraceae. Endangered in S. C. A fairly widespread southeast and south central species; rare in the southeastern portion of its range (Ala., S. C., N. C., and Tenn.); found in dry open woodlands and roadbanks; occurs with very low fidelity in characteristic habitats.
- Euonymus atropurpureus* Jacquin. Wahoo. Celastraceae. Threatened. Wide-ranging eastern N. A. species; rare in the southern periphery of its range (Ala., Ga., S. C., and N. C.); this species is quite common in the northern portion of its range.
- Habenaria peramoena* Gray. Purple fringeless orchid. Orchidaceae. \_\_\_\_\_; endangered in S. C. Fairly widespread but uncommon throughout most of its range; rare in about 1/2 its range (including Ala., S. C., N. C., and W. Va.); found in moist woods, meadows and streambanks in the mountains; threatened by loss of habitat to development.
- Hudsonia ericoides* L. Golden heather. Cistaceae. Endangered. Far disjunct; its main population occurs from Va. north to Canada; found in sandy pinelands in S. C.; known in S. C. from a single small, remnant population.
- Isoetes piedmontana* (Pfeiffer) Reed. Piedmont quillwort. Isoetaceae. Threatened. Endemic to the piedmont of N. C., S. C., Ga., and Ala.; found in temporary pools and drainage margins on granite outcrops; its habitat is threatened by heavy recreational use and the possibility of rock quarrying.
- Isopyrum biternatum* (Raf.) T. & G. False rue anemone. Ranunculaceae. Threatened. Wide-ranging eastern N. A. species; rare in the southeastern portion of its range (Ala., Ga., S. C., N. C., and W. Va.); found in rich, moist woodlands over basic soils.
- Juncus georgianus* Coville. Georgia rush. Juncaceae. Threatened. Endemic to the piedmont of Ga., S. C. and N. C.; rare in S. C. and N. C.; found in shallow depressions on granite rocks; its habitat is threatened by heavy recreational use and the possibility of rock quarrying.
- Lechea torreyi* Leggett ex Britton. Torrey's pinweed. Cistaceae. Threatened; endangered in S. C. Rare in the northern 2/3 of its range (S. C. and Ga.); found in ecotones of pocosins and savannahs; possibly overlooked.
- Litsea aestivalis* (L.) Fernald. Pond spice. Lauraceae. Threatened. Endemic to N. C., S. C., Ga., and Fla.; found along the margins of ponds, swamps and low wet woodlands; S. C. probably has more populations of this species than any other State; it may not be as rare as was once thought.
- Magnolia pyramidata* Pursh. Pyramid magnolia. Magnoliaceae. Threatened. Rare in over 1/2 its range, including S. C., Ga., La., and Tenn.; found in woods and stream banks in the coastal plain; this taxon may be a subspecies of *Magnolia fraseri* Walter.
- Narthecium americanum* Ker. Yellow asphodel. Liliaceae. Threatened; endangered in S. C. Rare disjunct (S. C. and N. C.) from the main populations in N. J. and Del.; found in bogs and pocosins; the single S. C. location has not been recently verified.
- Pachysandra procumbens* Michaux. Alleghany spurge. Buxaceae. Threatened. Found in Fla., La., Miss., Ala., Ga., S. C., N. C., Ky., and Tenn.; rare except in Ky. and Tenn.; found in rich woodlands, often on calcareous soils.



- Panax quinquefolium* L. American ginseng. Araliaceae. Threatened. A widespread eastern N. A. species; rare in 26 of 31 states where it is found; found in rich woods; exploited commercially for the purported medicinal properties of the roots (and leaves).
- Panicum lithophilum* Swallen. Outcrop panic-grass. Poaceae. Threatened. Endemic to the piedmont of Ga. and S. C.; rare in S. C.; found on granite flatrocks; this habitat is threatened by heavy recreational use and possibly by rock quarrying.
- Parnassia asarifolia* Vent. Kidney-leaved grass-of-parnassus. Saxifragaceae. Threatened; endangered in S. C. Found in Ala., Ga., S. C., N. C. Va., Tenn., and Ky.; rare except in Tenn. and Ky.; found in bogs and seepages in the mountains.
- Parnassia grandifolia* SC. Large-flowered grass-of-parnassus. Saxifragaceae. Fairly wide-ranging southeastern and south central species; rare in most States where it occurs, including Fla., Ga., S. C., N. C., Va., and W. Va.; found in seepage areas and wet calcareous soil in the mountains.
- Peltandra sagittaeifolia* (Michaux) Morong. White arrow-arum. Araceae. Threatened. A southeastern species rare in Fla., Ga., S. C., and N. C.; found in bogs, non-alluvial swamps, muddy ponds and sluggish stream margins in the coastal plain; pressed specimens can present misleading morphological characteristics.
- Pieris phillyreifolia* (Hooker) DC. Climbing fetterbush. Ericaceae. Threatened. Endemic to the coastal plain of Fla., Ala., Ga., and S. C.; rare in Ala., S. C. and most of Ga.; this species creeps up the trunks of pond cypress beneath the outer bark; the only known population in S. C. is on U. S. Forest Service land.
- Rhapidophyllum hystrix* (Fraser) H. Wendl. Needle palm. Arecaceae. Threatened; endangered in S. C. Reported from Fla., Miss., Ala., Ga., and S. C.; rare in Fla., Ala., and S. C.; found in swamps and hammocks in the coastal plain; the species has reproductive problems; commonly cultivated.
- Rhexia aristosa* Britton. Awn-petaled meadow-beauty. Melastomataceae. Threatened. Found from Ala. to N. J.; rare in the southern periphery of its range (Ala., Ga., S. C., and N. C.); found in savannahs and low pinelands in the coastal plain.
- Rhododendron speciosum* (Willd.) Sweet. Oconee azalea. Ericaceae. Threatened. Endemic to Ala., Ga. and S. C.; rare in Ala. and S. C.; found in sandy woods in the piedmont; this may be a variety of the flame azalea (*R. calendulaceum* (Michaux) Torrey).
- Rudbeckia mollis* Ell. Soft-haired coneflower. Asteraceae. Threatened. Rare in the northern 3/4 of its range (S. C., Ga. and Ala.); found in open sandy woods in the coastal plain.
- Sageretia minutiflora* (Michaux) Mohr. Small-flowered buckthorn. Rhamnaceae. Threatened. Rare in all of its range except Fla. (Miss., Ala., Ga., and S. C.); found on shell mounds, calcareous hammocks and rocky bluffs of the outer coastal plain.
- Saxifraga careyana* Gray. Carey saxifrage. Saxifragaceae. Threatened. A southern Appalachian endemic; rare in Ga., S. C., N. C., and Va.; not uncommon in Tenn.; found on moist rocks and seepage slopes; known in S. C. from a single population.
- Schisandra glabra* (Brick.) Rehder. Bay starvine. Schisandraceae. Threatened; endangered in S. C. Rare or overlooked in all of its range except La. and Miss. (Fla., Ala., Ga., S. C., N. C., Tenn., and Ark.); found in rich mesic woods where it tends to climb over such trees as beech, magnolia and tulip poplar.
- Scirpus erismanae* Schuler. Georgia bullrush. Cyperaceae. Threatened; endangered in S. C. Endemic to Fla., Ga., and S. C.; rare in Ga. and S. C.; found along open, sandy pond margins in the coastal plain; because of the pioneer nature of its habitat, the species is threatened by normal plant succession.



- Senecio millefolium* T. & G. Divided-leaved groundsel. Asteraceae. Threatened. Endemic to the mountains of N. C., S. C. and Ga.; rare in Ga. and N. C.; found on or near rock outcrops; somewhat rare but not threatened in S. C.
- Sporobolus teretifolius* Harper. Wire-leaved dropseed. Poaceae. Threatened. Endemic to the coastal plain of N. C., S. C. and Ga.; rare in S. C. and N. C.; found in savannahs and moist pine flatwoods; listed as rare in Ga. in 1975; now known to be much more common in Ga. than originally thought.
- Stewartia ovata* (Car.) Weath. Mountain camellia. Theaceae. Threatened. Reported from Ala., Ga., S. C., N. C., Va., Tenn., and Ky.; rare except in Tenn. and N. C.; usually restricted to the narrow ecotone between Hemlock Forest and Chestnut oak - Rhododendron Forest; populations are always very small.
- Swertia caroliniensis* (Walt.) Kuntze. Columbo. Gentianaceae. Threatened. Wide-ranging eastern species; rare in about 1/2 its range, including the entire se. portion (Ala., Ga., S. C., N. C., and Tenn.); found in rich woods and dryish meadows.
- Trichomanes boschianum* Sturm. Eastern filmy-fern. Hymenophyllaceae. Threatened. Fairly widespread south central and southeastern species; rare in more than 1/2 its range, including Ala., Ga., S. C., N. C., Ky., Tenn., W. Va., Ill., and Ark.; usually found on overhanging acid rocks near streams in the mountains.
- Trichomanes petersii* A. Gray. Dwarf filmy-fern. Hymenophyllaceae. Threatened. Rare in most of its range, including Ala., Ga., N. C., S. C., Tenn., Ark., La., Miss.; found in a variety of damp, shady acidic conditions (tree bases, crevices, grottos, rocks, humus); found in the mountains in S. C.
- Trillium discolor* Wray. Faded trillium. Liliaceae. Threatened. Endemic to N. C., S. C. and Ga.; found on wooded slopes usually on circumneutral or basic soils; although locally quite abundant this species has a very restricted distribution (Savannah River drainage system).
- Trillium lancifolium* Raf. Lance-leaved trillium. Liliaceae. Threatened. Found in w. Fla., La., Ala., Ga., S. C., Va., and Tenn.; not rare in Ga.; found on rich wooded slopes, usually on circumneutral to basic soils; threatened by stream impoundment.
- Viguiera porteri* A. Gray. Confederate daisy. Asteraceae. Threatened; endangered in S. C. Endemic to the piedmont of Ala., Ga. and S. C.; rare in Ala. and S. C.; found on granite outcrops; S. C.'s single population of this species is threatened by habitat destruction.

### OF STATEWIDE CONCERN IN S. C. (3)

- Acer pensylvanicum* L. Striped maple. Aceraceae. Threatened. Wide-ranging eastern N. A. species; found in moist, rich woods in the mountains.
- Agrimonia incisa* T. & G. Incised groovebur. Rosaceae. Threatened. Reported from Florida s. to N. C. and w. to Miss.; found in dry pine woods of the coastal plain.
- Aletris obovata* Nash. White colic root. Liliaceae. Endangered. Found from S. C. to Fla.; found in savannahs, pinelands and moist open areas of the coastal plain; one of the two S. C. populations has been destroyed by urban development.
- Amaranthus pumilus* Raf. Coast pigweed. Amaranthaceae. Threatened. Found from R. I. to S. C.; found on coastal beaches and open sand dunes.
- Amphicarpum muhlenbergianum* (Schult.) Hitchcock. Muhlenberg's amphicarpum. Poaceae. Threatened. Ranges from S. C. to Fla.; found in the coastal plain in low pinelands, moist, sandy margins of limesinks, and moist, sandy roadsides; this species may be more common than collections indicate.



- Arenaria uniflora* Walter. Single-flowered sandwort. Caryophyllaceae. Threatened. Endemic to the piedmont of N. C., S. C., Ga., and Ala.; found on granite outcrops; its habitat is threatened by heavy recreational use and the possibility of rock quarrying.
- Aristolochia macrophylla* Lam. Dutchman's pipe. Aristolochiaceae. Threatened. Fairly wide-ranging southeastern and south central species; found in rich woods and stream banks in the mountains.
- Asplenium resiliens* Kunze. Black-stemmed spleenwort. Polypodiaceae. Endangered. Wide-ranging eastern species; found on consolidated marl outcrops (and limestone further north); only four small populations are known in S. C.
- Asplenium rhizophyllum* L. Walking fern. Polypodiaceae. Threatened. Wide-ranging eastern N. A. species; found on shady, mossy boulders in moist, rich woods in the mountains.
- Aster spectabilis* Aiton. Low showy aster. Asteraceae. Threatened. Reported from Mass. to S. C. along the coast and in the mountains of S. C. and N. C.; found in pine barrens, dry sandy soil among pines, and woodland borders.
- Athyrium pycnocarpon* (Sprengel) Tidestrom. Narrow-leaved glade fern. Aspidiaceae. Threatened. Wide-ranging eastern N. A. species; found in rich woods and on forested seepage slopes in the mountains.
- Balduina atropurpurea* Harper. Purple baldwinia. Asteraceae. Endangered. Endemic to Ga. and S. C.; typically found in savannahs; in S. C. found along the edge of a bottomland forest; known from a single population in S. C.
- Canna flaccida* Salisbury. Golden canna lily. Cannaceae. Threatened. Ranges from Fla. n. to S. C. and w. to Miss.; found in pine savannahs and marshes in the coastal plain.
- Carex folliculata* L. Long sedge. Cyperaceae. Endangered. Wide-ranging eastern N. A. species; found in sphagnum bogs in the mountains; known from a single locality in S. C.
- Caulophyllum thalictroides* (L.) Michaux. Blue cohosh. Berberidaceae. Threatened. Wide-ranging eastern N. A. species; found in rich woods in the piedmont and mountains.
- Chrysobalanus oblongifolius* Michaux. Gopher apples. Rosaceae. Threatened. Reported from Fla. n. to S. C. and w. to Miss.; found in sandhills and dry pineland communities; abundant locally, but known in S. C. from only 2 counties.
- Circaea lutetiana* ssp. *canadensis* (L.) Ascherson and Magnus. Intermediate enchanters nightshade. Onagraceae. Threatened. Wide-ranging eastern N. A. species; found in moist, rich woods in the mountains and coastal plain.
- Coreopsis rosea* Nuttall. Pink tickseed. Asteraceae. Threatened. Wide-ranging eastern N. A. species; found in sandy, gravelly, or peaty shores and depressions in the coastal plain.
- Cornus racemosa* Lam. Gray-stemmed dogwood. Cornaceae. Threatened. Widespread eastern N. A. species; found in poorly drained meadows and thickets; known in S. C. from a single population in the upper piedmont.
- Dicentra cucularia* (L.) Bernh. Dutchman's breeches. Fumariaceae. Threatened. Wide-ranging eastern N. A. species; found rich woods and on river banks; known in S. C. from a single population in the piedmont; also rare in Ga. and Ala.
- Dryopteris goldiana* (Hooker) Gray. Goldie's wood fern. Aspidiaceae. Endangered. Wide-ranging eastern N. A. species; found on rich, rocky seepage slopes in the mountains.
- Dryopteris spinulosa* (Mueller) Watt. Spinulose wood-fern. Aspidiaceae. Endangered. A widespread N. A. species; found in swamps, bogs, and springy slopes; known in S. C. from a single population in the coastal plain.



- Echinodorus parvulus* Engelm. Little burhead. Alismataceae. Threatened. Reported from Fla. w. to Tx. and n. to Minn. and Maine; found on sandy shores or mud bottoms in shallow water in the coastal plain.
- Eryngium aquaticum* L. var. *ravenelii* (Gray) Math. and Const. Ravenel's buttonroot. Apiaceae. Threatened. Endemic to S. C., Ga. and Fla.; found in dry to wet pinelands on the coastal plain; the Berkeley county location is the type locality.
- Fimbristylis vahlii* (Lam.) Link. Vahl's fimbriatylis. Cyperaceae. Threatened. A wide-ranging species of the southern U. S. and tropical Am.; found in damp soil of river banks and low open ground; also rare in Ga.
- Forestiera liquistrina* (Michaux) Poiret. Upland swamp-privet. Oleaceae. Endangered. Ranges from Ky. and Tenn. to Fla.; found on rocky slopes and sandy streambanks; only two known localities in S. C.
- Gaultheria procumbens* L. Teaberry. Ericaceae. Threatened. Wide-ranging eastern N. A. species; found in xeric to mesic wooded habitats in the mountains.
- Habenaria integra* (Nutt.) Sprengel. Yellow fringeless orchid. Orchidaceae. Threatened. Reported from N. J. s. to Fla., w. to Tx. and Ark. and n. in the interior to Tenn.; found in moist pine flatwoods and savannahs.
- Habenaria lacera* (Michaux) Ladd. Green fringeless orchid. Orchidaceae. Threatened. Wide-ranging eastern N. A. species; found in bogs, marshes, wet meadows and thickets in the mountains and coastal plain.
- Halesia diptera* Ellis. Two-winged silverbell. Styracaceae. Endangered. Reported from n. Fla. w. to Tx. and Ark. and n. to S. C.; known only from a woodland border of a brackish marsh in S. C. (typically found on hammocks and stream banks).
- Helenium pinnatifidum* (Nuttall) Rydberg. Southeastern sneezeweed. Asteraceae. Threatened. Reported from Fla. and Miss. and n. to N. C.; found in bogs, bays and savannahs in the coastal plain.
- Hemicarpha micrantha* (Vahl) Pax. Common hemicarpha. Cyperaceae. Threatened. Wide-ranging eastern N. A. species; found on sandy strands in the coastal plain; also rare in N. C.
- Hydrophyllum canadense* L. Blunt-leaved waterleaf. Hydrophyllaceae. Endangered. Wide-ranging eastern N. A. species; found in rich woods, usually near streams or seepages; known in S. C. from a single small population.
- Hypericum adpressum* Bartram. Creeping St. John's wort. Hypericaceae. Threatened. Reported from Ga. and La. n. to se. Mass., W. Va.; Ind. and s. Ill.; found in bogs in the coastal plain.
- Ipomoea macrorrhiza* Michaux. Large-rooted morning glory. Convolvulaceae. Endangered. Reported from Fla. w. to Miss. and n. to N. C.; found in sandy open clearings and beaches; known in S. C. from only two small populations.
- Ipomopsis rubra* (L.) Wherry. Standing cypress. Polemoniaceae. Threatened. Reported from s. central and se. U. S.; found on river banks, in sandhills and occasionally in pastures and roadsides.
- Juniperus communis* var. *depressa* Pursh. Ground juniper. Cupressaceae. Threatened. Wide-ranging eastern N. A. species; found in rocky soil in the mountains and upper piedmont.
- Lepuropetalon spatulatum* (Muhl.) Ell. Southern lepuropetalon. Saxifragaceae. Threatened. Reported from N. C. s. to Ala. and w. to La. and e. Tx.; found in sandy ditches and wet sandy soils in cemeteries, pastures and along power lines.



- Leucothoe populifolia* (Lam.) Dippel. Carolina dog-hobble. Ericaceae. Threatened. Reported from S. C. to Fla.; found in swamps and pond margins.
- Lilium canadense* L. Canada lily. Liliaceae. Endangered. Wide-ranging eastern N. A. species; found in wet meadows and bogs in the mountains; known in S. C. from a single population.
- Lithospermum tuberosum* Rugel ex D. C. Tuberous gromwell. Boraginaceae. Endangered. Found from Fla. n. to Ky. and w. to Tx.; found in rich woods in the piedmont; known in S. C. from two very small populations.
- Lonicera flava* Sims. Yellow honeysuckle. Caprifoliaceae. Threatened. Reported from the s. central and se. U. S.; found in woodlands and thickets in the mountains and upper piedmont.
- Ludwigia spathulata* T. & G. Spathulate seedbox. Onagraceae. Threatened. Endemic to Fla. and S. C.; found in bogs and pond margins in the coastal plain.
- Lycopodium porophyllum* Lloyd and Underwood. Rock clubmoss. Lycopodiaceae. Threatened. Reported from the s. central and se. U. S.; found on shaded cliffs; known in S. C. from a single population.
- Lygodium palmatum* (Bernh.) Swartz. American climbing fern. Schizaeaceae. Threatened. Widespread eastern species; found in moist thickets and woodlands with acid soils.
- Magnolia macrophylla* Michaux. Umbrella tree. Magnoliaceae. Endangered. Found from Ala. to Ky. and Tenn. and w. to La. and Ark.; found in alluvial woods and sheltered valleys in the coastal plain; known from old collections that have not been recently verified.
- Nyssa ogeche* Bartram. Ogeechee plum. Nyssaceae. Endangered. Endemic to the coastal plain of n. Fla., s. Ala., Ga., and s. S. C.; found in swamps and bog forests.
- Pellaea atropurpurea* (L.) Link. Purple-stemmed cliff brake. Pteridaceae. Threatened. Wide-ranging eastern N. A. species; usually found on exposed, or lightly wooded, calcareous slopes in the mountains.
- Philadelphus hirsutus* Nutt. Hairy mock-orange. Saxifragaceae. Threatened. Reported from Ala. to Ky.; found on dry, wooded bluffs and ledges in the mountains and piedmont.
- Pinckneya pubens* Michaux. Georgia fever-bark. Rubiaceae. Threatened. Endemic to se. S. C., Ga. and n. Fla.; found on sloping swamp borders in the coastal plain.
- Polygala paucifolia* Willd. Fringed polygala. Polygalaceae. Threatened. Wide-ranging eastern N. A. species; found in mixed or deciduous woods at high elevations in the mountains.
- Portulaca coronata* Small. Wing-podded purslane. Portulacaceae. Threatened. Reported from S. C., Ga., Miss., w. Tx., and lower Calif.; usually on granite rocks but occasionally in open sandy soil.
- Psilotum nudum* (L.) Beauvois. Whiskfern. Psilotaceae. Threatened. Reported from Fla. to S. C. and Texas; found in various habitats (often in swamps and floodplains); epiphytic, epipetric, or terrestrial.
- Ptilimnium nodosum* (Rose) Mathias. Rose's bishop weed. Apiaceae. Endangered. Endemic to the coastal plain of Ga. and S. C.; found in savannahs, shallow ponds and wet ditches; the only S. C. population known prior to 1978 was destroyed by urban development; a new population was found in 1978.
- Pyxidanthra barbulate* Michaux. Flowering pixie moss. Diapensiaceae. Threatened. Re-



ported from the coastal plain of N. J., Va., N. C., and S. C.; found in xeric woodlands, pocosins and pine barrens.

*Quercus palustris* Muenchh. Pin oak. Fagaceae. Endangered. Wide-ranging eastern N. A. species; found in swamps and low grounds; known in S. C. from a single small population in the piedmont.

*Rhododendron catawbiense* Michaux. Catawba Rhododendron. Ericaceae. Threatened. Reported from Va. and Ky. to Ga. and Ala.; found on rocky balds at high elevations.

*Sanicula trifoliata* Bicknell. Large-fruited sanicula. Apiaceae. Threatened. Widespread eastern N. A. species; found in mixed deciduous forests in the mountains.

*Sarracenia rubra* Walter. Sweet pitcher plant. Sarraceniaceae. Threatened. Reported from nw. Fla. to se. Miss. and n. to N. C.; found in acid shrub bogs (particularly in the fall line sandhills) and savannahs in the coastal plain.

*Schwalbea americana* L. Chaff-seed. Scrophulariaceae. Threatened. Reported from Fla. w. to La., n. to e. Miss., Ct., and e. N. Y., in the coastal plain and the mountains of Ky. and Tenn.; found in savannahs and moist to dry pine flatwoods in the coastal plain.

*Scleria baldwinii* Torrey (Steudel). Baldwin's nutrush. Cyperaceae. Threatened. Reported from Fla. to Tx. and S. C.; found most commonly in pond cypress savannahs; also found in moist pine flatwoods and low open ground.

*Scutellaria parvula* Michaux. Diminutive skullcap. Lamiaceae. Threatened. Wide-ranging eastern species; found in low woods over basic soils in the piedmont of S. C.; found elsewhere in upland woods, rocky areas, fields and prairies in the West.

*Solidago bicolor* L. White golden-rod. Asteraceae. Threatened. Wide-ranging eastern N. A. species; found in dry open woods, on open rocky plains, and on roadbanks.

*Spiranthes laciniata* (Small) Ames. Lace-lip ladies' tresses. Orchidaceae. Threatened. Reported from Fla. to Tx. and N. J.; found in moist cypress savannahs, marshes and wet pinelands.

*Spiranthes longilabris* Lindley. Giant spiral-orchid. Orchidaceae. Threatened. Reported from Fla. to La. and Va.; found in swamps, marshes, wet savannahs, and meadows in the coastal plain; known in S. C. from two populations.

*Trautvetteria carolinensis* (Walter) Vail. Carolina tassel-rue. Ranunculaceae. Threatened. Reported from Pa. to Fla. and w. Ind., Ill., and Mo.; found in moist ground along streams and seeps in the mountains.

*Triphora trianthophora* (Swartz) Rydberg. Three-birds orchid. Orchidaceae. Threatened. Wide-ranging eastern N. A. species; found in humus in damp, rich woods and thickets in the coastal plain and mountains.

*Utricularia floridana* Nash. Florida bladderwort. Lentibulariaceae. Endangered. Endemic to the coastal plain of S. C., Ga. and Fla.; found in old ponds; known in S. C. from a single locality.

#### OF CONCERN; STATUS UNRESOLVED (4)

*Agrimonia pubescens* Walh. var *pubescens*. Soft groovebur. Rosaceae. Wide-ranging eastern species; found in dry woods and thickets, rich woods, and shaded (calcareous) ledges in the mountains.

*Anthaenantia rufa* (Ell.) Schultes. Purple silkyscale. Poaceae. Reported from Fla. to Tx. and N. C.; found in dry to moist flatwoods and sandhills in the coastal plain.

*Balduina uniflora* Nuttall. Single-flowered balduina. Asteraceae. Reported from Fla. to N. C. and La.; found in savannahs and moist to dry pine flatwoods.



- Botrychium lunarioides* Michaux. Winter grapefern. Ophioglossaceae. Reported from Fla. to N. C. and La.; found in old fields and pastures, dry grassy fields, cemeteries, and margins of rock outcrops.
- Carex decomposita* Muhl. Cypress-knee sedge. Cyperaceae. S. central and se. species; typically found in cypress swamps and ponds, at the base or on the buttress of cypress trees.
- Chrysosplenium americanum* Schweinitz. Golden saxifrage. Saxifragaceae. Wide-ranging eastern N. A. species; found in seepages on mossy rocks near streams and in springy or muddy soil in cool, shaded areas in the mountains and upper piedmont.
- Cimicifuga americana* Michaux. Bugbane. Ranunculaceae. Reported from Pa. and Md. to Ga.; found in woods at high elevations.
- Cliftonia monophylla* (Lam.) Britton ex. Sargent. Buckwheat tree. Cyrillaceae. Found from Fla. to La. and S. C.; found in the coastal plain in wet, sandy, acid soils of non-alluvial swamps and bogs; thought to be extinct in S. C. in 1977; one S. C. population has recently been reported, but not verified.
- Coreopsis gladiata* Walter. Southeastern tickseed. Asteraceae. Reported from Fla. to Miss. and N. C.; rare in Ala., Ga. and N. C.; found in swamps or low pinelands in 5 coastal plain counties in S. C.
- Crotonopsis linearis* Michaux. Narrow-leaved rushfoil. Euphorbiaceae. Reported from S. C. to Fla. and w. to Mo. and Tx. (disjunct in Iowa and Ill.); found in sandy soil in open woods, clearings or roadsides.
- Cynanchum laeve* (Michaux) Person. Blue vine. Asclepiadaceae. S. eastern and s. central in distribution; found in low moist woods, fields, floodplains, riverbanks, thickets, and ditches; a pernicious weed in places.
- Heuchera parviflora* Nuttall. Small-flowered alumroot. Saxifragaceae. Found in the se. and s. central U. S.; found on shaded rocks or ledges in the mountains.
- Hymenocallis coronaria* (Le Conte) Kunth. Stream-bank spider lily. Amaryllidaceae. Reported from Fla., Ala., Ga., and S. C.; found along stream banks and on rocky shoals in the piedmont; the taxonomic status of this species needs to be resolved.
- Hypericum buckleyi* M. A. Curtis. Mountain St. John's wort. Hypericaceae. Endemic to the mountains of N. C., S. C. and Ga.; found in rock crevices and seepage slopes at high elevations; cultivated as a rock garden plant; just how rare is it?
- Juncus gymnocarpus* Coville. Few-flowered rush. Juncaceae. Reported from Fla. to Miss. and n. to Pa.; rare except in N. C. and Va.; found in bogs in the mountains; N. C. botanists feel that it is much more common throughout than collections indicate; they further indicate that it is almost weedy in parts of the southern Appalachians.
- Lachnocaulon beyrichianum* Sporleder ex Korn. Southern bog-buttons. Eriocaulaceae. Reported from the coastal plain of N. C., S. C., Ga., Ala., and Fla.; typically found in sandy pine-palmetto flats in areas with karst topography; probably much more common than collections indicate.
- Mayaca fluviatilis* Aublet. Stream bog moss. Mayacaceae. Reported from the coastal plain from Fla. to Tx. and N. C.; found along the margins of sluggish streams, pools and bogs; if synonymous with *M. aubletii*, then this is not a rare plant.
- Melanthium virginicum* L. Virginia bunchflower. Liliaceae. Reported from the s. central and se. U. S.; found in bogs, wet woods, and savannahs.
- Monarda didyma* L. Bee-balm. Lamiaceae. Wide-ranging eastern species; found in rich woods in the mountains; frequently cultivated; the only S. C. population may have been planted.



- Phacelia bipinnatifida* Michaux. Cut-leaved phacelia. Hydrophyllaceae. A s. central and se. U. S. species; found in moist woods and on moderately shaded streambanks.
- Polygala nana* Michaux DC. Low milkwort. Polygalaceae. Found from Fla. to La. and S. C.; found in wet, open, sandy areas in the coastal plain.
- Potamogeton foliosus* Raf. Leafy pondweed. Potamogetonaceae. Wide-ranging N. A. species; found in fresh (often hard) and brackish water of streams and ponds.
- Psoralea onobrychis* Nuttall. French grass. Fabaceae. Found in the interior provinces from Tenn. to Mo. and O. and s. to Ala., N. C. and S. C.; found in rich woods along streams; no specimens from S. C. have been seen.
- Pycnanthemum montanum* Michaux. Thin-leaved mountain-mint. Lamiaceae. Southern Appalachian endemic; apparently common only in N. C.; found in moist woods, balds and road banks; needs to be seriously looked for in S. C.
- Quercus bicolor* Willd. Swamp white oak. Fabaceae. Widespread eastern N. A. species; S. C. is at its southern periphery; the only collection from S. C. did not contain mature acorns; acorns are necessary for positive identification.
- Quercus georgiana* M. A. Curtis. Georgia oak. Fabaceae. Endemic to the piedmont of Ala., Ga. and S. C.; found on granitic hills; the Spartanburg County local has not been relocated; destroyed at the Kershaw County location; very common in Ga.
- Ruellia strepens* L. Rustling ruellia. Acanthaceae. Wide-ranging se. and s. central species; found in dry woods in the coastal plain.
- Scirpus subterminalis* Torrey. Swaying bullrush. Cyperaceae. Wide-ranging eastern species; found in sluggish streams in the coastal plain.
- Stachys latidens* Small. Broad-toothed hedge nettle. Lamiaceae. Reported from D. C. s. to Ga.; found on rocky slopes, woodlands and rich bottomlands in the mountains.
- Viola pensylvanica* Michaux. Smooth yellow violet. Violaceae. Wide-ranging eastern N. A. species; it is at the periphery of its range in S. C.; found in alluvial woods and slopes throughout.

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\*Note: Only the most recent southeastern State rare plant lists, lists not included in Kartesz and Kartesz (1977), are referenced here.

## APPENDIX I

### NON-COMMITTEE PARTICIPANTS AT THE JAN. 6, 1979 REVISION MEETING

- Jeannine Angerman, University of South Carolina, Aiken, South Carolina.
- Judith G. Baroutsis, Augusta College, Augusta, Georgia.
- John Emmett Cely, S. C. Heritage Trust Program, Columbia, South Carolina.
- Robert R. Currie, U. S. Fish and Wildlife Service, Asheville, North Carolina.
- Susan Dugan, Graduate student, University of South Carolina, Columbia, South Carolina.
- B. Allen Dunn, Clemson University, Clemson, South Carolina.
- L. L. Gaddy, Folly Beach, South Carolina.
- John Garton, Duke Power Company, Charlotte, North Carolina.
- Jeffrey C. Luvall, Savannah River Ecology Laboratory, Aiken, South Carolina.
- Rudy Mancke, S. C. Museum Commission, Columbia, South Carolina.
- Nora Murdock, U. S. Fish and Wildlife Service, Columbia, South Carolina.



Gillian Newberry, University of South Carolina at Spartanburg, Spartanburg, South Carolina.  
 Gibbes Patton, Wofford College, Spartanburg, South Carolina.  
 Levester Pendergrass, U. S. Forest Service, Atlanta, Georgia.  
 Walt Schrader, Rock Hill, South Carolina.  
 Rebecca Sharitz, Savannah River Ecology Laboratory, Aiken, South Carolina.  
 Harry Shealy, University of South Carolina at Aiken, South Carolina.  
 Edward Swails, Clemson University, Clemson, South Carolina.  
 Lawrence Swails, Francis Marion College, Florence, South Carolina.  
 Larry Swails, Jr., James Byrnes Academy, Darlington, South Carolina.  
 Jim Woody, U. S. Army Corps of Engineers, Charleston, South Carolina.

## APPENDIX II

### CONTRIBUTORS OF DATA USED IN THIS REVISION\*

Name	Organization	Data
Baskin, J.	University of Kentucky	Kentucky
Beal, E. O.	Western Kentucky University	<i>Sagittaria</i>
Bozeman, J.	Georgia Dept. Natural Resources	Georgia
Burbanck, M.	Emory University	Granite Rock Outcrop Endemics
Duncan, W. H.	University of Georgia	Georgia
Dunn, D.	University of Missouri	Missouri
Ettman, D.	Emory University	<i>Schisandra</i>
Flory, W.	Wake Forest University	<i>Hymenocallis</i>
Folsom, J.	Vanderbilt University	<i>Habenaria</i>
Hall, D.		
(for D. B. Ward)	University of Florida	Florida
Jones, S. B.	University of Georgia	Georgia
Kingsland, G.	Clemson University	Oconee Co., S. C.
Kral, R.	Vanderbilt University	Alabama Tennessee
Medley, M.	Kentucky Nature Preserves Comm.	Kentucky
Mellinger, M. B.	Georgia Botanical Society	Georgia
Perkins, K.	University of Florida	Florida
Pittillo, J. D.	Western Carolina University	N. Carolina
Porter, D.	Virginia Polytechnic & State University	Virginia
Pullen, Thomas	University of Mississippi	Mississippi
Radford, A. E.	U. N. C. - Chapel Hill	N. Carolina S. Carolina
Thomas, R. D.	Northeast Louisiana University	<i>Ophioglossum</i> <i>Botrychium</i>
Wofford, B. E.	University of Tennessee	Tennessee
Young, M. A. N.	Georgia Dept. Natural Resources	Georgia

\*Note: Contributors provided information for selected "problem" species within their area of expertise.